Name:_____ Date:_____ Period:____

Unit 1 Study Guide

Description/Things to Remember	Examples

Variables and Translations

phrases = expressions → simplify

* "less than" ex 7 less than 9 = 9 − 7
* ( ) = the quantity of

sentences = equations → equations

verb (is) means =

* define variables (unknowns)

ex The total cost is the number of sandwiches times $3.50 → C = 3.5s

Let C = total cost

Let s = # of sandwiches

rGEMDAS

rGEMDAS

r - replace

Grouping ( ) [ ] | |

Exponents

Multiply - Divide

Add - Subtract

ex $2[(1+5)^2 - (18 \div 3)]$

$2[6^2 - 6]$

$2[36 - 6]$

$2[30]$

60

ex $3(6 + 2^2) - 5$

$3(6+4) - 5$

$3(10) - 5$

$30 - 5$

25

		exponents:
| | → absolute value		$a^2 = a \cdot a$
• a number's distance away from zero		
* $\frac{n}{d}$ = division		

Evaluating Expressions

Evaluate: substitute a given number for each variable, then simplify.

* $a^2 = a \cdot a$
* $(-4)^2 = (-4)(-4) = 16$
* $-4^2 = -16$
* $-a$ when $a = 4$ is -4
* $-a$ when $a = -4$ is $-(-4) = 4$

ex $x = 3, y = 6, z = 4$

$xy^2 + z$

$3 \cdot 6^2 + 4$

$3 \cdot 36 + 4$

$108 + 4$

112

ex $a = -2 \quad b = 2$

$\frac{4a + b}{b} + b^2$

$\frac{4(-2) + 2}{2} + 2^2$

$\frac{-8 + 2}{2} + 4$

$\frac{-6}{2} + 4$

$-3 + 4$

1

Operations with Integers

Integer: positive and negative whole number

ex $-5-4(3+2)$
$-5-4(5)$
$-5-20$
$\boxed{-25}$

* $-(4)^2$
$\boxed{-16}$
* $(-4)^2$
$\boxed{16}$
* $-(-4)^2$
$\boxed{-16}$

ex $-(36\div 2^2)^2-48\div(-4)^2$
$-(36\div 4)^2-48\div 16$
$-(9)^2-3$
$-81-3$
$\boxed{-84}$

Distributive Property

$a(b+c)=ab+ac$

$xy-xz=x(y-z)$

$-(b+c)=-b-c$

$P=2(x)+2(x+1)$
$P=2x+2x+2$
$\boxed{P=4x+2}$

ex $4[m-2(2m+3)]$
$4[m-4m-6]$
$4[-3m-6]$
$\boxed{-12m-24}$

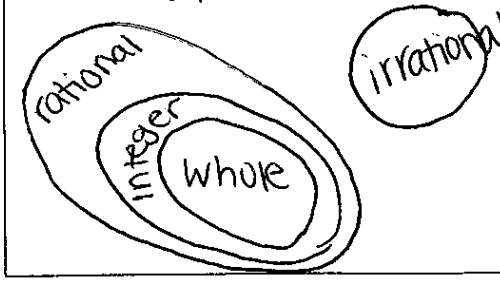
Properties of Numbers

$4w+7(3+w)$
$4w+21+7w$
$4w+7w+21$
$(4w+7w)+21$
$(4+7)w+21$
$11w+21$

Justify
Distributive P.
comm prop +
assoc prop +
Distributive P.
addition

Important Properties
* Identity prop of +
$4+0=4$
* Identity prop of x
$b\cdot 1=b$
* Inverse prop of +
$4+(-4)=0$
* Inverse prop of x
$5\cdot\frac{1}{5}=1$

Real Numbers



irrational
- non-terminating
- non-repeating
$\pi = 3.1415\ldots$
- non-perfect squares
$\sqrt{7}$ $\sqrt{11}$ $\sqrt{105}$

Rational
- terminating decimals
3.25
- repeating decimals
$0.\overline{3}=\frac{1}{3}$
- perfect squares
$\sqrt{16}=4$